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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ZIMMERMAN, GLENN

ART UNIT PAPER NUMBER

2879

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/640,479

Applicant(s)

PARK, KYUNG-SU

Examiner

Glenn Zimmerman

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 09 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 and 11 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 09 September 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Amendment, filed on September 9, 2002, has been entered and acknowledged by the examiner.

The canceled claim 3, filed on September 9, 2002, has been entered and acknowledged by the examiner.

Drawings

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on September 9, 2002 have been approved.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 line 7, the wording "capable of" is used. This wording renders the claim indefinite, as the information after the wording "capable of" may or may not be a limitation.

Art Unit: 2879

A 112 2nd paragraph rejection has been determined for claim 1, as written about above. However, a further evaluation of the claim will be done while interpreting "capable of" as "".

Claim 3 was canceled. Claims 5 and 6 are dependent on claim 3, but were not canceled, and this leaves the claims indefinite.

A 112 2nd paragraph rejection has been determined for claims 5 and 6, as written about above. However, a further evaluation of the claims will be done while interpreting "claim 3" as "claim 1".

Claims 2-9 are rejected for depending from a rejected claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuruoka U.S. Patent 5,055,744 in view of Tatsuda et al. U.S. Patent 4,972,116.

Regarding claim 12, Tsuruoka discloses a fluorescent display (**col. 1 lines 5-10**) comprising:

a pair of substrates (**Fig. 2 r f. 25 and 26 substrat and front cov r**) and side glasses surrounding an evacuated envelope;

a display (**picture cells r f. P**) provided on one of the substrates in the evacuated envelope;

an electron controller (**diffusion electrode ref. 27**) to allow repulsion and acceleration of electrons toward the display when a negative potential (**col. 4 lines 67-68**) is applied thereto; and

an electron emitter (**cathodes ref. 23**) located between the display and electron controller.

, but fail to teach a vacuum. Tsuruoka in the analogous art teach a vacuum (**col. 1 lines 35-40**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a vacuum in the fluorescent display of Tsuruoka, since such a modification would be conventional.

Regarding claim 12, Tsuruoka teaches all the limitations of claim 1, but fails to teach an envelope side. Tsuruoka in the analogous art teach an envelope side (**Fig. 5 ref. 9**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use an envelope side in the fluorescent display of Tsuruoka, since such a modification would be conventional.

Regarding claim 12, Tsuruoka teach all the limitations of claim 1, but fail to teach substrate and side made of glass. Tatsuda et al. in the analogous art teach substrate and sides made of glass (**col. 1 lines 34-38**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use substrates and sides made of glass in the fluorescent display of Tsuruoka, since such a modification would be conventional.

Referring to claim 13, Tsuruoka teach all of the limitations of the claim. Tsuruoka teach the vacuum fluorescent display as recited in claim 12, wherein the electron controller is mounted on the other substrate (**ref. 26 and 27**).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuruoka U.S. Patent 5,055,744 in view of Tatsuda et al. U.S. Patent 4,972,116 and Mera et al. U.S. Patent 4,122,376.

Regarding claim 14, Tsuruoka teach all the limitations of claim 14, but fail to teach wherein the electron controller is shaped as a mesh. Mera et al. in the analogous art teach wherein the electron controller is shaped as a mesh (**col. 5 lines 1-10; col. 6 lines 50-61**). Additionally, Mera et al. teach incorporation of such a mesh to improve visibility as one can see through a mesh while the mesh can still act to electron control also the mesh is easy to produce and can give a clear view of the pattern display sections from above (**col. 6 lines 58-61**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a mesh in electron controller of Tsuruoka since such a modification would improve visibility as one can see through a mesh while the mesh can still act to electron control also the mesh is easy to produce and can give a clear view of the pattern display sections from above as taught by Mera et al.

Regarding claim 15, Tsuruoka teach all the limitations of claim 15, but fail to teach wherein the electron controller is a layer of a transparent electrically conductive material. Mera et al. in the analogous art teach wherein the electron controller is a layer of a transparent electrically conductive material (**col. 7 lines 1-10; col. 1 lines 65-66**). Additionally, Mera et al. teaches incorporation of such a transparent electrically conductive material to improve the structure by providing a very clear display (**col. 7 lines 9-10**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use transparent electrically conductive material for the electron controller of Tsuruoka since such a modification would improve the structure by providing a very clear display as taught by Mera et al.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuruoka U.S. Patent 5,055,744 in view of Tatsuda et al. U.S. Patent 4,972,116 and Mera et al. U.S. Patent 4,122,376 and Kawasaki et al. U.S. Patent 5,463,276.

Regarding claim 16, Tsuruoka teaches all the limitations of claim 16, but fail to teach tin doped indium oxide. Kawasaki et al. in the analogous art teach tin doped indium oxide (**col. 13 lines 65-57**). Additionally, Kawasaki teaches incorporation of such a tin doped indium oxide to improve the structure by providing a transparent conductive film (**col. 13 lines 65-67**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use tin doped indium oxide in the fluorescent

Art Unit: 2879

display conductive film of Tsuruoka since such a modification would improve the structure by providing a transparent conductive film as taught by Kawasaki et al.

Referring to claim 17, Tsuruoka teach all of the limitations of the claim. Tsuruoka teach the vacuum fluorescent display as recited in claim 12, further comprising

a control electrode (**deflection control electrodes ref. Gd**) located near the electron emitter to control trajectories of emitted electrons. One can clearly see trajectories being changed in figure 2 relative to references a,b,c,d and e.

Allowable Subject Matter

Claims 1 and 5-7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claim 2-9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Regarding claim 1, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a vacuum fluorescent display including the combination of all the limitations as set forth in claim 1, and specifically a pair of substrates and side glasses surrounding an evacuated envelope a display means an electron emissive means with an electron control means using a negative potential could not be found elsewhere in prior art.

Regarding claims 2-9, claims 2-9 are allowed for the reasons given in claim 1, because of their dependency status on claim 1.

Art Unit: 2879

Regarding claim 10, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a method of producing an imaged on a vacuum fluorescent display including the combination of all the limitations as set forth in claim 10, and specifically a display means, electron control means, an electron emissive means with a negative potential applied to the electron control means could not be found elsewhere in prior art.

Regarding claim 11, claim 11 is allowed for the reasons given in claim 10, because of its dependency status on claim 10.

Response to Arguments

Arguments on repulsion and negative potential noted.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (703) 308-8991. The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is n/a.


Application/Control Number: 09/640,479

Page 9

Art Unit: 2879



Glenn Zimmerman
November 26, 2002



ASHOK PATEL
PRIMARY EXAMINER